

## ABSTRACT OF THE DISCLOSURE

The present invention enable to separate source signals from mixture signals into which the source signals are mixed temporally and spatially, where the number of source signals is more than or equal to the number of mixture signals. A signal storing portion 12 stores the mixture signals input into a signal input portion 11, and a formulation portion 131 in a signal separation portion 13 extracts the mixture signals stored in the signal storing portion 12 and formulates them as an operation expression using a basis matrix composed of plural small matrixes that consist of bases with time symmetry. A learning algorithm application portion 132 applies a learning algorithm based on overcomplete representations, a mixture matrix calculating portion 133 calculates a mixture matrix, a source signal estimating portion 134 estimates source signals separated from the mixture signals, and an output portion 14 outputs the calculated mixture matrix and the estimated source signals.